General

Guideline Title

Clinical practice guideline: prevention of blood culture contamination.

Bibliographic Source(s)

ENA Emergency Nursing Resources Development Committee. Clinical practice guideline: prevention of blood culture contamination. Des Plaines (IL): Emergency Nurses Association; 2012 Dec. 12 p. [46 references]

Guideline Status

This is the current release of the guideline.

Recommendations

Major Recommendations

The grades of recommendations (A–C, Not Recommended, I/E), levels of evidence (I–VII), and quality of evidence (I–IV) are defined at the end of the "Major Recommendations" field.

Description of Decision Options/Interventions and the Level of Recommendation

Please note that the references listed after each recommendation represent the evidence considered when making the recommendation. This does not mean that the evidence in each individual reference supports the recommendation.

1. Provide education and training for personnel who collect blood cultures. Level C – Weak (Bamber et al., 2009; Dhillon, Clark, & Azadian, 2009; Eskira et al., 2006; McLellan, Townsend, & Parsons, 2008; Roth et al., 2010; College of American Pathologists [CAP], 2008; Weddle, Jackson, & Selvarangan, 2011)
2. Have blood cultures drawn by dedicated phlebotomy staff. Level B – Moderate (Bekeris et al., 2005; Mermel et al., 2009; Mtunthama et al., 2008; Roth et al., 2010; Schifman et al., 1998; Snyder et al., 2012; CAP, 2008)
3. Draw blood cultures from a dedicated peripheral venipuncture site, not an intravenous catheter. Level B – Moderate (Baron et al., 2005; Mermel et al., 2009; Snyder et al., 2012; Stohl et al., 2011)
4. Routine sterile gloving during venipuncture may decrease blood culture contamination. Level C – Weak (Kim et al., 2011)
5. Use pre-assembled blood culture collection packs. Level C – Weak (Bamber et al., 2009; Dhillon, Clark, & Azadian, 2009; Madeo, Jackson, & Williams, 2005; Snyder et al., 2012; Thomas et al., 2011)
6. Clean culture bottle tops with antiseptic prior to blood culture bottle inoculation. Level B – Moderate (Bekeris et al., 2005; Schifman et al., 1998)
7. Clean culture bottle tops with 70% isopropyl alcohol and air dry prior to blood culture bottle inoculation. Level C – Weak (Clinical and

Laboratory Standards Institute [CLSI], 2007)

8. Use products containing alcohol to cleanse the skin prior to collecting blood cultures. Level A – High (Baron et al., 2005; CLSI, 2007; McLellan, Townsend, & Parsons, 2008; Mermel et al., 2009; Qamruddin, Khanna, & Orr, 2008; Schifman et al., 1998; Shahar, Wohl-Gottesman, & Shenkman, 1990; Snyder et al., 2012; Strand, Wajsbort, & Sturmann, 1993)
9. Use alcoholic chlorhexidine to clean the skin before drawing blood cultures in patients over 2 months of age. Level A – High (Baron et al., 2005; Benjamin et al., 2011; Caldeira, David, & Sampaio, 2011; CLSI, 2007; Madeo & Barlow, 2008; Marlowe et al., 2010; Mermel et al., 2009; Tepus et al., 2008)
10. Use alcohol to clean the skin before drawing blood cultures in children under 2 months of age. Level C – Weak (CLSI, 2007)
11. Apply alcohol containing solutions with 30 seconds of vigorous back and forth scrubbing. If povidone-iodine is used, it should be applied in concentric circles. Level C – Weak (Baron et al., 2005)
12. Allow the skin cleansing agent to air dry before venipuncture when drawing blood cultures. Level A – High (Baron et al., 2005; CLSI, 2007; Mermel et al., 2009)
13. Divert the initial 1–2 ml of blood into a sterile receptacle when drawing blood culture specimens via peripheral venipuncture. Level B – Moderate (Patton & Schmitt, 2010) (Note: New evidence is pending. When it is available, this recommendation will be updated if indicated.)
14. Inadequate evidence exists to make a recommendation regarding blood sample volume and prevention of contamination of blood cultures. (Note: Manufacturers' recommendations for the blood specimen volume per culture bottle should be followed). Level – I/E (Bekeris et al., 2005; CLSI, 2007; Schifman et al., 1998)
15. Inoculate the blood culture bottle with a different needle than that used for venipuncture. (Note: Changing needles is not recommended due to the risk of blood exposure). Level B – Moderate (Spitalnic, Wollard, & Mermel, 1995; Bekeris et al., 2005; Baron et al., 2005)
16. Monitor contamination rates and provide performance feedback to personnel who draw blood cultures. Level B – Moderate (Bekeris et al., 2005; Gibb et al., 1997; Thomas et al., 2011; CAP, 2008)

Definitions:

Levels of Recommendation for Practice

Level A Recommendations: High

- Reflects a high degree of clinical certainty
- Based on availability of high quality Level I, II and/or III evidence available using Melnyk & Fineout-Overholt grading system* (see the "Rating Scheme for the Strength of the Evidence" field)
- Based on consistent and good quality evidence; has relevance and applicability to emergency nursing practice
- Is beneficial

Level B Recommendations: Moderate

- Reflects moderate clinical certainty
- Based on availability of Level III and/or Level IV and V evidence using Melnyk & Fineout-Overholt grading system* (see the "Rating Scheme for the Strength of the Evidence" field)
- There are some minor flaws or inconsistencies in quality of evidence; has relevance and applicability to emergency nursing practice
- Is likely to be beneficial

Level C Recommendations: Weak

- Level V, VI and/or VII evidence available using Melnyk & Fineout-Overholt grading system* (see the "Rating Scheme for the Strength of the Evidence" field)
- Based on consensus, usual practice, evidence, case series for studies of treatment or screening, anecdotal evidence, and/or opinion
- There is limited or low quality patient-oriented evidence; has relevance and applicability to emergency nursing practice
- Has limited or unknown effectiveness

Not Recommended for Practice

- No objective evidence or only anecdotal evidence available; or the supportive evidence is from poorly controlled or uncontrolled studies
- Other indications for not recommending evidence for practice may include:

- Conflicting evidence
- Harmfulness has been demonstrated
- Cost or burden necessary for intervention exceeds anticipated benefit
- Does not have relevance or applicability to emergency nursing practice

- There are certain circumstances in which the recommendations stemming from a body of evidence should not be rated as highly as the individual studies on which they are based. For example:
  - Heterogeneity of results
  - Uncertainty about effect magnitude and consequences
  - Strength of prior beliefs
  - Publication bias

Level I/E: Insufficient evidence upon which to make a recommendation.

Grading the Levels of Evidence*

I. Evidence from a systematic review or meta-analysis of all relevant randomized controlled trials (RCTs) or evidence-based clinical practice guidelines based on systematic reviews of RCTs
II. Evidence obtained from at least one properly designed RCT
III. Evidence obtained from well-designed controlled trials without randomization
IV. Evidence obtained from well-designed case control and cohort studies
V. Evidence from systematic reviews of descriptive and qualitative studies
VI. Evidence from a single descriptive or qualitative study
VII. Evidence from opinion of authorities and/or reports of expert committees

Grading the Quality of the Evidence

I. Acceptable Quality: No concerns
II. Limitations in Quality: Minor flaws or inconsistencies in the evidence
III. Major Limitations in Quality: Many flaws and inconsistencies in the evidence
IV. Not Acceptable: Major flaws in the evidence

*Melnyk, B. M., & Fineout-Overholt, E. (2005). Evidence-based practice in nursing and healthcare: A guide to best practice. Philadelphia, PA: Lippincott, Williams, & Wilkins.

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Bacteremia requiring blood culture

Guideline Category

Diagnosis

Prevention

Technology Assessment

Clinical Specialty

Emergency Medicine

Infectious Diseases

Internal Medicine

Nursing

Pathology

Intended Users

Advanced Practice Nurses

Allied Health Personnel

Clinical Laboratory Personnel

Hospitals

Nurses

Physician Assistants

Physicians

Guideline Objective(s)

To evaluate which pre-analytic variables related to peripheral venous specimen collection and transportation decrease blood culture contamination

Target Population

Hospitalized patients with bacteremia requiring blood cultures

Interventions and Practices Considered

1. Skin preparation (use of skin antiseptics such as alcohol, chlorhexidine, iodine tincture, povidone-iodine, and iodophor)
2. Sterile gloving
3. Cleaning culture bottle caps
4. Use of pre-assembled blood culture collection packs
5. Drawing blood cultures from a dedicated peripheral venipuncture site, not an intravenous catheter
6. Specimen diversion (diverting the initial 1–2 ml of blood into a sterile receptacle)
7. Use of double-needle technique (inoculation of the blood culture bottle with a different needle than that used for venipuncture)
8. Providing education and training for personnel who collect blood cultures
9. Having blood cultures drawn by dedicated phlebotomy staff
10. Monitoring contamination rates and providing performance feedback to personnel who draw blood cultures

Note: Blood sample volume was considered but inadequate evidence existed to make a recommendation.

Major Outcomes Considered

- Morbidity and mortality
- False-positive culture rates

- Contamination rates
- Hospital length of stay
- Costs of hospital stay
- Exposure rates

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

All articles relevant to the topic were identified via a comprehensive literature search. The following databases were searched: PubMed, Google Scholar, Cumulative Index to Nursing and Allied Health (CINAHL), eTBlast, Ovid, Cochrane Library, Agency for Healthcare Research and Quality (AHRQ; www.ahrq.gov), Specimen Care (www.specimencare.com), and the National Guideline Clearinghouse (www.guideline.gov). Searches were conducted using various combinations of key words including blood culture contamination, blood culture collection, hand preparation, phlebotomy technique, and blood samples. Initial searches were limited to English language articles from January 2002 to October 2012. This search limit was found to be inadequate and, therefore, the time frame was extended to begin with January 1990. In addition, the reference lists in the selected articles were scanned for pertinent research articles. Research articles from emergency department settings, non-emergency department settings, position statements and guidelines from other sources were also reviewed.

Articles that met the following criteria were chosen to formulate the clinical practice guideline (CPG): research studies, meta-analyses, systematic reviews, and existing guidelines relevant to the topic of blood culture contamination. Articles included in meta-analyses or systematic reviews were not considered independently unless there were factors not addressed in the meta-analysis/systematic review. Other types of reference articles and textbooks were also reviewed and used to provide additional information.

Number of Source Documents

38 documents were included in the evidence tables.

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Grading the Levels of Evidence*

I. Evidence from a systematic review or meta-analysis of all relevant randomized controlled trials (RCTs) or evidence-based clinical practice guidelines based on systematic reviews of RCTs
II. Evidence obtained from at least one properly designed RCT
III. Evidence obtained from well-designed controlled trials without randomization
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VI. Evidence from a single descriptive or qualitative study

VII. Evidence from opinion of authorities and/or reports of expert committees

Grading the Quality of the Evidence

I. Acceptable Quality: No Concerns
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IV. Not Acceptable: Major flaws in the evidence

*Melnyk, B. M., & Fineout-Overholt, E. (2005). Evidence-based practice in nursing and healthcare: A guide to best practice. Philadelphia, PA: Lippincott, Williams, & Wilkins.

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

The clinical practice guideline (CPG) authors used a standardized reference table to collect information and assist with preparation of tables of evidence, ranking each article in terms of the level of evidence, quality of evidence, and relevance and applicability to practice. Clinical findings and levels of recommendations regarding patient management were then made by the Emergency Nurses Association (ENA) 2012 Emergency Nursing Resources Development Committee according to ENA's classification of levels of recommendation for practice, which include: Level A High, Level B Moderate, Level C Weak or Not recommended for practice (see the "Rating Scheme for the Strength of the Recommendations" field).

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

This clinical practice guideline (CPG) was created based on a thorough review and critical analysis of the literature following Emergency Nurses Association (ENA)'s Guidelines for the Development of Clinical Practice Guidelines (see the "Availability of Companion Documents" field).

Conference calls with Subcommittee members and staff are held as necessary to discuss progress and facilitate the Subcommittee's work. All members of the Subcommittee independently complete an exhaustive review of all identified literature, complete a separate evidence table for each topic (if possible), and then reconvene to reach consensus. Each Subcommittee prepares a description of the topic, definition, background, significance, and evidence table. All articles and documents are uploaded to the CPG Development website for easy retrieval by everyone involved with the development process. The Subcommittee identifies and assigns preliminary scores for quality and strength of evidence, and describes conclusions based on the review of the body of evidence. Each Subcommittee also serves as "second readers" for another topic; this assures an in-depth look at the literature by two Subcommittees. The entire Committee reads the articles and reviews the evidence-appraisal tables for each topic and then finalizes implications for practice and the level of recommendation.

Rating Scheme for the Strength of the Recommendations

Levels of Recommendation for Practice

Level A Recommendations: High

- Reflects a high degree of clinical certainty
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- Based on consistent and good quality evidence; has relevance and applicability to emergency nursing practice
- Is beneficial

Level B Recommendations: Moderate

- Reflects moderate clinical certainty
- Based on availability of Level III and/or Level IV and V evidence using Melnyk & Fineout-Overholt grading system* (see the "Rating Scheme for the Strength of the Evidence" field)
- There are some minor flaws or inconsistencies in quality of evidence; has relevance and applicability to emergency nursing practice
- Is likely to be beneficial

Level C Recommendations: Weak

- Level V, VI and/or VII evidence available using Melnyk & Fineout-Overholt grading system* (see the "Rating Scheme for the Strength of the Evidence" field)
- Based on consensus, usual practice, evidence, case series for studies of treatment or screening, anecdotal evidence, and/or opinion
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    - Heterogeneity of results
    - Uncertainty about effect magnitude and consequences
    - Strength of prior beliefs
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Level I/E: Insufficient evidence upon which to make a recommendation.

*Melnyk, B. M., & Fineout-Overholt, E. (2005). Evidence-based practice in nursing and healthcare: A guide to best practice. Philadelphia, PA: Lippincott, Williams, & Wilkins.

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

Internal Peer Review

Description of Method of Guideline Validation

The Institute for Emergency Nursing Research (IENR) Advisory Council reviews the final document for overall validity and provides feedback as appropriate using the Clinical Practice Guidelines (CPGs) Evaluation Worksheet. Reviews and feedback are sent to the Subcommittee to evaluate and incorporate, as appropriate. Emergency Nurses Association (ENA) staff creates the final products for publication with input from the

Committee.

Evidence Supporting the Recommendations

References Supporting the Recommendations

Bamber AI, Cunniffe JG, Nayar D, Ganguly R, Falconer E. Effectiveness of introducing blood culture collection packs to reduce contamination rates. Br J Biomed Sci. 2009;66(1):6-9. PubMed

Baron EJ, Weinstein MP, Dunne WM, Yagupsky P, Welch DF, Wilson DM. Cumitech 1C, blood cultures IV. Washington (DC): ASM Press; 2005.

Bekeris LG, Tworek JA, Walsh MK, Valenstein PN. Trends in blood culture contamination: a College of American Pathologists Q-Tracks study of 356 institutions. Arch Pathol Lab Med. 2005 Oct;129(10):1222-5. PubMed

Benjamin RJ, Dy B, Warren R, Lischka M, Eder AF. Skin disinfection with a single-step 2% chlorhexidine swab is more effective than a two-step povidone-iodine method in preventing bacterial contamination of apheresis platelets. Transfusion. 2011 Mar;51(3):531-8. PubMed

Caldeira D, David C, Sampaio C. Skin antiseptics in venous puncture-site disinfection for prevention of blood culture contamination: systematic review with meta-analysis. J Hosp Infect. 2011 Mar;77(3):223-32. PubMed

Clinical and Laboratory Standards Institute (CLSI). Principles and procedures for blood cultures; approved guideline [CLSI document M47-A]. 6th ed. Wayne (PA): Clinical and Laboratory Standards Institute (CLSI); 2007.

College of American Pathologists q-tracks blood culture contamination; annual summary report. Northfield (IL): College of American Pathologists; 2008.

Dhillon RH, Clark J, Azadian BS. Reducing blood culture contamination. J Hosp Infect. 2009 Sep;73(1):97-9. PubMed

Eskira S, Gilad J, Schlaeffer P, Hyam E, Peled N, Karakis I, Riesenberg K, Schlaeffer F, Borer A. Reduction of blood culture contamination rate by an educational intervention. Clin Microbiol Infect. 2006 Aug;12(8):818-21. PubMed

Gibb AP, Hill B, Chorel B, Brant R. Reduction in blood culture contamination rate by feedback to phlebotomists. Arch Pathol Lab Med. 1997 May;121(5):503-7. PubMed

Kim NH, Kim M, Lee S, Yun NR, Kim KH, Park SW, Kim HB, Kim NJ, Kim EC, Park WB, Oh MD. Effect of routine sterile gloving on contamination rates in blood culture: a cluster randomized trial. Ann Intern Med. 2011 Feb 1;154(3):145-51. PubMed

Madeo M, Barlow G. Reducing blood-culture contamination rates by the use of a 2% chlorhexidine solution applicator in acute admission units. J Hosp Infect. 2008 Jul;69(3):307-9. PubMed

Madeo M, Jackson T, Williams C. Simple measures to reduce the rate of contamination of blood cultures in Accident and Emergency. Emerg Med J. 2005 Nov;22(11):810-1. PubMed

Marlowe L, Mistry RD, Coffin S, Leckerman KH, McGowan KL, Dai D, Bell LM, Zaoutis T. Blood culture contamination rates after skin antisepsis with chlorhexidine gluconate versus povidone-iodine in a pediatric emergency department. Infect Control Hosp Epidemiol. 2010 Feb;31(2):171-6. PubMed

McLellan E, Townsend R, Parsons HK. Evaluation of ChloraPrep (2% chlorhexidine gluconate in 70% isopropyl alcohol) for skin antisepsis in preparation for blood culture collection. J Infect. 2008 Dec;57(6):459-63. PubMed

Mermel LA, Allon M, Bouza E, Craven DE, Flynn P, O'Grady NP, Raad II, Rijnders BJ, Sherertz RJ, Warren DK. Clinical practice guidelines for the diagnosis and management of intravascular catheter-related infection: 2009 update by the Infectious Diseases Society of America [published erratum: Clin Infect Dis 2010 Feb 1;50:457]. Clin Infect Dis. 2009 Jul 1;49(1):1-45. [281 references] PubMed

Mtunthama N, Gordon SB, Kusimbwe T, Zijlstra EE, Molyneux ME, French N. Blood culture collection technique and pneumococcal surveillance in Malawi during the four year period 2003-2006: an observational study. BMC Infect Dis. 2008;8:137. PubMed

Patton RG, Schmitt T. Innovation for reducing blood culture contamination: initial specimen diversion technique. J Clin Microbiol. 2010 Dec;48(12):4501-3. PubMed

Qamruddin A, Khanna N, Orr D. Peripheral blood culture contamination in adults and venepuncture technique: prospective cohort study. J Clin Pathol. 2008 Apr;61(4):509-13. PubMed

Roth A, Wiklund AE, Palsson AS, Melander EZ, Wullt M, Cronqvist J, Walder M, Sturegard E. Reducing blood culture contamination by a simple informational intervention. J Clin Microbiol. 2010 Dec;48(12):4552-8. PubMed

Schifman RB, Strand CL, Meier FA, Howanitz PJ. Blood culture contamination: a College of American Pathologists Q-Probes study involving 640 institutions and 497134 specimens from adult patients. Arch Pathol Lab Med. 1998 Mar;122(3):216-21. PubMed

Shahar E, WohlGottesman BS, Shenkman L. Contamination of blood cultures during venepuncture: fact or myth?. Postgrad Med J. 1990 Dec;66(782):1053-8. [45 references] PubMed

Snyder SR, Favoretto AM, Baetz RA, Derzon JH, Madison BM, Mass D, Shaw CS, Layfield CD, Christenson RH, Liebow EB. Effectiveness of practices to reduce blood culture contamination: a Laboratory Medicine Best Practices systematic review and meta-analysis. Clin Biochem. 2012 Sep;45(13-14):999-1011. [45 references] PubMed

Spitalnic SJ, Woolard RH, Mermel LA. The significance of changing needles when inoculating blood cultures: a meta-analysis. Clin Infect Dis. 1995 Nov;21(5):1103-6. PubMed

Stohl S, Benenson S, Sviri S, Avidan A, Block C, Sprung CL, Levin PD. Blood cultures at central line insertion in the intensive care unit: comparison with peripheral venipuncture. J Clin Microbiol. 2011 Jul;49(7):2398-403. PubMed

Strand CL, Wajsbort RR, Sturmann K. Effect of iodophor vs iodine tincture skin preparation on blood culture contamination rate. JAMA. 1993 Feb 24;269(8):1004-6. PubMed

Tepus D, Fleming E, Cox S, Hazelett S, Kropp D. Effectiveness of Chloraprep in reduction of blood culture contamination rates in emergency

department. J Nurs Care Qual. 2008 Jul-Sep;23(3):272-6. PubMed

Thomas S, Cheesbrough J, Plumb S, Bolton L, Wilkinson P, Walmsley J, Diggle P. Impact of a blood culture collection kit on the quality of blood culture sampling: fear and the law of unintended consequences. J Hosp Infect. 2011 Aug;78(4):256-9. PubMed

Weddle G, Jackson MA, Selvarangan R. Reducing blood culture contamination in a pediatric emergency department. Pediatr Emerg Care. 2011 Mar;27(3):179-81. PubMed

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Prevention of blood culture contamination in the pre-analytic phase will aid in the accurate and timely identification of the causative organism in patients with bacteremia, will decrease unnecessary antibiotics and additional tests to identify the reason for the positive blood culture, will reduce costs and length of hospital stay, and will increase patient survival.

Potential Harms

Not stated

Contraindications

Contraindications

The Food and Drug Administration warns that use of chlorhexidine in premature infants or children under 2 months of age may cause excessive skin irritation and chemical burns. Chlorhexidine is not currently recommended in infants less than 2 months of age.

Qualifying Statements

Qualifying Statements

- The Emergency Nurses Association (ENA)'s Clinical Practice Guidelines (CPGs) are developed by ENA members to provide emergency nurses with evidence-based information to utilize and implement in their care of emergency patients and families. Each CPG focuses on a clinical or practice-based issue, and is the result of a review and analysis of current information believed to be reliable. As such, information and recommendations within a particular CPG reflect the current scientific and clinical knowledge at the time of publication, are only current as of their publication date, and are subject to change without notice as advances emerge.
- In addition, variations in practice, which take into account the needs of the individual patient and the resources and limitations unique to the institution, may warrant approaches, treatments and/or procedures that differ from the recommendations outlined in the CPGs. Therefore, these recommendations should not be construed as dictating an exclusive course of management, treatment or care, nor does the use of such recommendations guarantee a particular outcome. CPGs are never intended to replace a practitioner's best nursing judgment based on the clinical circumstances of a particular patient or patient population. CPGs are published by ENA for educational and informational purposes only, and ENA does not approve or endorse any specific methods, practices, or sources of information. ENA assumes no liability for any

injury and/or damage to persons or property arising out of or related to the use of or reliance on any CPG.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Quick Reference Guides/Physician Guides

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

Staying Healthy

IOM Domain

Effectiveness

Safety

Timeliness

Identifying Information and Availability

Bibliographic Source(s)

ENA Emergency Nursing Resources Development Committee. Clinical practice guideline: prevention of blood culture contamination. Des Plaines (IL): Emergency Nurses Association; 2012 Dec. 12 p. [46 references]

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2012 Dec

Guideline Developer(s)

Emergency Nurses Association - Professional Association

Source(s) of Funding

Emergency Nurses Association

Guideline Committee

2012 ENA Emergency Nursing Resources Development Committee

Composition of Group That Authored the Guideline

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Financial Disclosures/Conflicts of Interest

Not stated

Guideline Status

This is the current release of the guideline.

Guideline Availability

Electronic copies: Available in Portable Document Format (PDF) from the Emergency Nurses Association Web site .

Availability of Companion Documents

The following are available:

- Requirements for the development of: clinical practice guidelines, clinical practice guidelines synopsis, and translation into practice (TIP) recommendations. Des Plaines (IL): Emergency Nurses Association; 2013 Dec. 40 p. Electronic copies: Available in Portable Document Format (PDF) from the Emergency Nurses Association Web site .
- Clinical practice guideline: prevention of blood culture contamination. Synopsis. Des Plaines (IL): Emergency Nurses Association; 2012 Dec. 1 p. Electronic copies: Available in PDF from the Emergency Nurses Association Web site .
- CPG evidence table: prevention of blood culture contamination. Des Plaines (IL): Emergency Nurses Association; 2012 Dec. 21 p. Electronic copies: Available in PDF from the Emergency Nurses Association Web site .
- CPG other resources table: prevention of blood culture contamination. Des Plaines (IL): Emergency Nurses Association; 2012 Dec. 2 p. Electronic copies: Available in PDF from the Emergency Nurses Association Web site .

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI Institute on February 13, 2014. The information was verified by the guideline developer on March 27, 2014.

Copyright Statement

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